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SAFETY DATA SHEET **BTI-054** Prepared to OSHA, ACC, ANSI, WHSR, WHMIS, GHS & EU Standards SDS Revision Date: 12/6/2022 SDS Revision: 2.1 1. PRODUCT & COMPANY IDENTIFICATION 1 1 Product Name PHENOLPHTHALEIN SOLUTION 1.2 Chemical Name: Phenolphthalein Solution 1.3 Synonyms Tru Temp Indicator; Presto Black Indicator; A1008; A1006 Trade Names: 1.4 Phenolphthalein Solution 1.5 Product Use Distributor's Name: 1.6 Birchwood Laboratories LLC Distributor's Address: 17 7900 Fuller Road, Eden Prairie, MN 55344 USA ChemTrec +1 (800) 424-9300 / +1 (703) 527-3887 or Poison Control Center +1 (855) 281-1742 18 Emergency Phone: 1.9 Business Phone / Fax: +1 (952) 937-7900 / +1 (952) 937-7979 2. HAZARDS IDENTIFICATION 2.1 Hazard Identification: Prepared in accordance with UN Globally Harmonized standards. Intended to comply with OSHA 29 CFR 1910.1200. Canadian WHMIS and Australian Work Health and Safety. DANGER! CAUSES SERIOUS EYE IRRITATION. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY CAUSE CANCER. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. Classification: Eye Irrit. 2A; Mut. 2; Carc. 1; Repr. 2 22 Label Flements: Hazard Statements (H): H319 - Causes serious eye irritation. H341 - Suspected of causing genetic defects. H350 - May cause cancer. H361 - Suspected of damaging fertility or the unborn child. Precautionary Statements (P): P203 - Obtain, read and follow all safety instructions before use. P264 - Wash with soap and water thoroughly after handling. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection. P305+P351+P338 - IF IN EYES. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing. P337+P317 - If eye irritation persists: Get medical help. P318 - IF exposed or concerned get medical help. P405 - Store locked up. P501 - Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF) Other Warnings: WARNING: This product can expose you to chemicals including Phenolphthalein, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more to www.P65Warnings.ca.gov. In the event of an exposure or medical inquiry involving this product, please contact a physician or local poison control center, who may seek advice from the U.S. manufacturer, and show them this SDS. KEEP OUT OF REACH OF CHILDREN. 3. COMPOSITION & INGREDIENT INFORMATION EXPOSURE LIMITS IN AIR (mg/m³) ACGIH NOHSC OSHA ppm maa ppm ES-ES-ES-PEL IDLH CHEMICAL NAME(S) CAS No RTECS No **EINECS No** STFI STEL OTHER TWA STFI PFAK 60-100 7332-18-5 ZC0110000 231-791-2 NE NE NF NF NF NE NE NE WATER JM1575000 34590-94-8 252-104-2 30-60 100 150 50 308 NF 100 150 NA SKIN DIPROPYLENE GLYCOL MONOMETHYL ETHER 77-09-8 SM8380000 201-004-7 1-5 NA NA NF NF NF NA NA NA PHENOLPHTHALEIN Muta.2, Carc. 1B, Repr. 2; H341, H350, H361 4. FIRST AID MEASURES DO NOT INDUCE VOMITING. Contact SafetyCall +1 (855) 281-1742 or the nearest Poison Control Center First Aid Ingestion: or local emergency telephone number for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration. If product gets in the eyes, flush eyes thoroughly with copious amounts of water for at least 15 minutes, Eyes: holding eyelid(s) open to ensure complete flushing. If the eyes or face become swollen during or following use, consult a physician or emergency room immediately. Remove contaminated clothing and wash affected areas with soap and water. If discomfort persists and/or Skin: the skin reaction worsens, contact a physician immediately. Do not wear contaminated clothing until after it has been properly cleaned. Remove victim to fresh air at once. Under extreme conditions, if breathing stops, perform artificial respiration. Inhalation: Seek immediate medical attention. Effects of Exposure: May be harmful if swallowed. Ingestion: Eyes: Irritation upon direct contact. May be harmful if absorbed through skin. Skin:

Inhalation:

headache, dizziness, disorientation.

Inhalation of high vapor concentrations may cause central nervous system effects, and symptoms such as



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|     |                                     | ·  | 4. FIRST A  |  |   |  |  |   |   |   |   |   |                                  |
|-----|-------------------------------------|--|---|--|---|--|--|---|---|---|---|---|----------------------------------|
| 4.3 | Symptoms of Overexposure:           | Ingestion:       Irritation to the gastrointestinal tract; possible symptoms include nausea, vomiting, diarrhea         Eyes:       Irritation upon direct contact.         Skin:       Irritation and possible dermatitis. May be absorbed through the skin in harmful amounts.         Inhalation:       May be harmful if inhaled. Causes respiratory tract irritation. Inhalation of high vapor concentrations recause central nervous system effects, and symptoms such as headache, dizziness, and disorientation. |   |  |   |  |  |   |   |   |   |   |                                  |
| 4.4 | Acute Health Effects:               | Causes resp  | oiratory tract irritation.  |  |   |  |  |   |   |   |   |   |                                  |
| 4.5 | Chronic Health Effects:             |  | i.<br>ed by the manufacture   | ar   |   |  |  |   |   |   |   |   |                                  |
| 4.6 | Target Organs:                      |  | Respiratory System  | 71.  |   |  |  |   |   |   |   |   |                                  |
| 4.7 | Medical Conditions                  |  | skin, eye or respirato  | ry disord  | ers.  |  |  | HEA   | LTH   |   |   |   | 3                                |
|     | Aggravated by Exposure:             |  |   |  | FLAI  | MMABIL   | ITY  |   |   | 1   |   |   |                                  |
|     |                                     |  |   |  |   |  |  | PHY   | SICAL H   | IAZARI  | os                                      |   | 0                                |
|     |                                     |  |   |  |   |  |  |   | TECTIV  |   |   | т   | В                                |
|     |                                     |  |   |  |   |  |  | EYES  |   | KIN   |   |   |                                  |
|     |                                     |  | 5. FIREI  | FIGHT  | ING N   | /FASI  | IRES   |   |   |   |   |   |                                  |
| 5.1 | Fire & Explosion Hazards:           | Non-flamma   |   | 10111  | 1140 1  | ILAGO  | INLO   |   |   |   |   |   |                                  |
| 5.2 | Extinguishing Methods:              |  | nguishing media appr  | opriate fo   | or surrou   | nding mate   | erials.  |   |   |   |   |   |                                  |
|     |                                     | as for surr<br>degradation<br>should be fo<br>spray to coo   | equivalent self-conta<br>ounding materials.<br>may produce oxides<br>ought from a safe dista<br>of fire-exposed surface<br>lution from entering se                            | Hazardo<br>of carb<br>ance. Ke<br>s and to                                 | ous deco<br>on, and/<br>eep conta<br>protect p                                | omposition<br>or nitrogen<br>iners cool<br>ersonal. F                            | product<br>n, hydroc<br>until wel<br>ight fire u | s may be<br>arbons ar<br>I after the<br>upwind. P         | e releas<br>nd/or deri<br>fire is ou<br>revent ru | ed. Ther<br>vatives.<br>t. Use w<br>noff from | rmal<br>Fire<br>ater                    | 3   | 0                                |
| 6.1 | Spills:                             |  | 6. ACCIDENT   |  |   |  |  |   |   |   |   |   |                                  |
|     |                                     | and place in<br>regulations.<br>contaminate<br>For <u>large sp</u><br>(e.g., sand of<br>for proper d   | open doors and windo<br>to appropriate closed<br>Wash all affected a<br>d clothing and wash t<br>ills (e.g., ≥ 1 gallon (3<br>or earth). Transfer liqu<br>isposal. Remove con | container<br>areas an<br>horoughl<br>.8 L)), de<br>uid to con<br>ataminate | r(s) for did<br>d outside<br>y before<br>ny entry<br>tainers for<br>d clothin | sposal. Dis<br>e of conta<br>reuse.<br>to all unpro<br>or recovery<br>g promptly | spose of iner with otected in or dispo           | properly in plenty of adividuals. sal and so she affected | n accorda<br>f warm w<br>Dike and<br>blid diking  | nce with                                      | local, stands soap.  spill wing to sepa | ate and f<br>Remov<br>th inert marate con | edera<br>e an<br>nateri<br>taine |
|     | I                                   |  | eaning runoffs out of r   |  |   |  |  |   |   |   |   |   |                                  |
| 7 1 | Mark 9 Husiana Drastiana            |  | . HANDLING  |  |   |  |  |   |   |   |   |   |                                  |
| 7.1 | work & Hyglene Practices:           | Avoid breathing mists or spray. Avoid eye and skin contact. Wear protective equipment when handling product. Keep out of the reach of children. Do not eat, drink or smoke when handling this product. Wash thoroughly after handling. Do not expose to heat and flame. Use only in ventilated areas. Keep out of the reach of children. Immediately clean-up and decontaminate any spills or residues.  |   |  |   |  |  |   |   |   |   |   |                                  |
| 7.2 | Storage & Handling:                 | Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans) away from heat and direct sunlight Store in clean, fire-resistant storage area with good ventilation and not subject to high temperatures. Keep containers covered when not in use. Avoid temperatures above 40°C (120°F). Keep away from incompatible substances (see Section 10). Protect containers from physical damage.  |   |  |   |  |  |   |   |   |   |   |                                  |
| 7.3 | Special Precautions:                | Empty conta  | ainers may retain haza  | ardous pr  | oduct res   | sidues.  |  |   |   |   |   |   |                                  |
|     |                                     | 8. EXP   | OSURE CONT  | ROLS   | 3 & PE  | RSON   | AL PI  | ROTEC   | CTION   |   |   |   |                                  |
| 8.1 | Exposure Limits:                    | J  |   |  | GIH   | 1.00.  | NOHSC  |   |   |   | OTHER                                   |   |                                  |
|     | ppm (mg/m³)                         | CHEMICAL NAM   | ME(S)   | TLV  | STEL  | ES-TWA   | ES-<br>STEL                                      | ES-<br>PEAK   | PEL   | STEL  | IDLH                                    |   |                                  |
|     |                                     | DIPROPYLEN   | IE GLYCOL   | 100  | 150   | 50   | 308  | NF  | 100   | 150   | NA                                      | SKIN                                      |                                  |
|     | Ventilation & Engineering Controls: | Use local or general exhaust ventilation to effectively remove and prevent buildup of vapors or mist generated from the handling of this product. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-  |   |  |   |  |  |   |   |   |   |   |                                  |
| 8.2 |                                     | wash station   | •   | пе аррго   | priate de   | Contamina  | illori equi                                      | pinoni io i   | avallable   | (e.g., sii                                    | ik, saie                                | ty snowe                                  |                                  |



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|  | δ. Ι   | EXPOSURE CONTROLS & PERSONAL PROTECTION – cont'd   |
|--|--|--|
| 8.4  | Eye Protection:  | Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). An eye wash station should also be available.  |
| 8.5  | Hand Protection:   | Wear protective, chemical-resistant gloves (e.g., nitrile rubber) when using or handling this product. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.  |
| 8.6  | Body Protection:   | A chemical resistant apron and/or protective clothing is not required, but are recommended, when handling or using this product. Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.  |
|  |  | 9. PHYSICAL & CHEMICAL PROPERTIES  |
| 9.1  | Appearance:  | Clear, colorless liquid  |
| 9.2  | Odor:  | Solvent odor   |
| 9.3  | Odor Threshold:  | NA NA  |
| 9.4  | pH:  | 5.0  |
| 9.5  | Melting Point/Freezing Point:  | NA NA  |
| 9.6  | Initial Boiling Point/Boiling  | > 100 °C (> 212 °F)  |
| 9.7  | Range:<br>Flashpoint:  | > 100 °C (> 212 °F) Open cup   |
| 9.8  | Upper/Lower Flammability   | NA   |
| 9.9  | Limits:<br>Vapor Pressure:   |  |
| 9.10   | Vapor Pressure.  Vapor Density:  | NA (Aim 4)   |
| 9.11   | Relative Density:  | >1 (Air=1)<br>1.0  |
| 9.12   | Solubility:  | Complete (water)   |
| 9.13   | Partition Coefficient (log Pow):   | NA   |
| 9.14   | Autoignition Temperature:  | NA   |
| 9.15   | Decomposition Temperature:   | NA NA  |
| 9.16   | Viscosity:   | NA NA  |
| 9.17   | Other Information:   | Evaporation Rate: < 1.0 (ethyl ether = 1.0) VOC >99% Volatile by volume  |
|  |  |  |
|  |  |  |
| 40.4   | Okal State   | 10. STABILITY & REACTIVITY   |
| 10.1   | Stability:   | 10. STABILITY & REACTIVITY Stable.   |
| 10.1   | Stability: Hazardous Decomposition Products:   |  |
| 10.2   | Hazardous Decomposition<br>Products:<br>Hazardous Polymerization:  | Stable.  |
| 10.2<br>10.3<br>10.4   | Hazardous Decomposition<br>Products:<br>Hazardous Polymerization:<br>Conditions to Avoid:  | Stable.  Thermal decomposition may produce carbon monoxide, carbon dioxide.  Will not occur.  Avoid high temperatures and ignition sources.  |
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| 10.2<br>10.3<br>10.4<br>10.5   | Hazardous Decomposition<br>Products:<br>Hazardous Polymerization:<br>Conditions to Avoid:<br>Incompatible Substances:  | Stable. Thermal decomposition may produce carbon monoxide, carbon dioxide.  Will not occur. Avoid high temperatures and ignition sources.  Strong oxidizers  11. TOXICOLOGICAL INFORMATION   |
| 10.2<br>10.3<br>10.4<br>10.5   | Hazardous Decomposition Products: Hazardous Polymerization: Conditions to Avoid: Incompatible Substances:  Routes of Entry:  | Stable.  Thermal decomposition may produce carbon monoxide, carbon dioxide.  Will not occur.  Avoid high temperatures and ignition sources.  Strong oxidizers  11. TOXICOLOGICAL INFORMATION  Inhalation: YES Absorption: YES Ingestion: YES   |
| 10.2<br>10.3<br>10.4<br>10.5<br>11.1<br>11.2                                 | Hazardous Decomposition Products: Hazardous Polymerization: Conditions to Avoid: Incompatible Substances:  Routes of Entry: Toxicity Data:   | Stable.  Thermal decomposition may produce carbon monoxide, carbon dioxide.  Will not occur.  Avoid high temperatures and ignition sources.  Strong oxidizers  11. TOXICOLOGICAL INFORMATION  Inhalation: YES Absorption: YES Ingestion: YES  Dipropylene Glycol Monomethyl Ether: LD50 (oral, rat): 5130 mg/kg.   |
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| 10.2<br>10.3<br>10.4<br>10.5<br>11.1<br>11.2<br>11.3<br>11.4                 | Hazardous Decomposition Products: Hazardous Polymerization: Conditions to Avoid: Incompatible Substances:  Routes of Entry: Toxicity Data: Acute Toxicity: Chronic Toxicity:   | Stable.  Thermal decomposition may produce carbon monoxide, carbon dioxide.  Will not occur.  Avoid high temperatures and ignition sources.  Strong oxidizers   11. TOXICOLOGICAL INFORMATION  Inhalation: YES   Absorption: YES   Ingestion: YES    Dipropylene Glycol Monomethyl Ether: LD <sub>50</sub> (oral, rat): 5130 mg/kg.  See Section 4.4  See Section 4.5  Phenolphthalein is listed as IARC Group 2B (possibly carcinogenic to humans). NTP 12th Ed reasonably anticipated to be a human carcinogen.  This product is suspected of damaging reproductive fertility in humans.   |
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|          |   | 13. DISPOSAL CONSIDERATIONS  |
|----------|---|--|
| 13.1     | Waste Disposal:   | Review current local, state and federal laws, codes, statutes and regulations to determine current status and appropri disposal method for the ingredients listed in Section 2. Any disposal practice must be in compliance with local, state, a federal laws and regulations. Contact the appropriate agency for specific information. Treatment, transport, storage a disposal of hazardous waste must be provided by a licensed facility or waste hauler.   |
| 13.2     | Special Considerations:                                   | NA .   |
|          |   |  |
|          |   | 14. TRANSPORTATION INFORMATION   |
| The desc | basic description (ID Numl<br>criptive information may be | oer, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Addition required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.   |
| 14.1     | 49 CFR (GND):   | NOT REGULATED  |
| 14.2     | IATA (AIR):   | NOT REGULATED  |
| 14.3     | IMDG (OCN):   | NOT REGULATED  |
| 14.4     | TDGR (Canadian GND):                                      | NOT REGULATED  |
| 14.5     | ADR/RID (EU):   | NOT REGULATED  |
| 14.6     | SCT (MEXICO):   | NOT REGULATED  |
| 14.7     | ADGR (AUS):   | NOT REGULATED  |
|          |   |  |
|          |   | 15. REGULATORY INFORMATION   |
| 15.1     | SARA Reporting<br>Requirements:                           | This product does not contain any substances subject to SARA Title III, sections 302 or 313 reporting requirements.  |
| 15.2     | SARA TPQ:   | There are no specific Threshold Planning Quantities for the components of this product.  |
| 15.3     | TSCA Inventory Status:                                    | The components of this product are listed on the TSCA Inventory.   |
| 15.4     | CERCLA Reportable Quantity:                               | NA .   |
| 15.5     | Other Federal Requirements:                               | NA .   |
| 15.6     | Other Canadian Regulations:                               | This product has been classified according to the hazard criteria of the HPR and the MSDS contains all of the information required by the HPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS Class D2B (Other Toxic Effects)   |
| 15.7     | State Regulatory Information:                             | Phenolphthalein is listed on the following state criteria lists: California Proposition 65 (CA65), New Jersey Right-to-Krust (NJ), and Pennsylvania Right-to-Know List (PA).  No ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state crit lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazard Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylva Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).  WARNING! This product contains Phenolphthalein a chemical known to the State of California to cause cancer other reproductive harm. For more information go to www.P65Warnings.ca.gov. |
| 15.8     | Other Requirements:                                       | NA   |



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|      |                      | 16. OTHER INF  | FORMATION                                       |  |  |
|------|----------------------|--|---|--|--|
| 16.1 | Other Information:   | DANGER! CAUSES SERIOUS EYE IRRITATION. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY CAUSE CANCER. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. Use as directed. Discontinue use irritation develops. Obtain, read and follow all safety instructions before use. Wash with soap and water thoroughly aff handling. Wear protective gloves/ protective clothing/ eye protection/ face protection. IF IN EYES: Rinse cautiously w water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing. If eye irritation persis Get medical help. IF exposed or concerned get medical help. Store locked up.  KEEP LOCKED UP AND OUT OF REACH OF CHILDREN.  WARNING! This product contains Phenolphthalein, a chemical known to the State of California to cause cancer other reproductive harm. For more information go to www.P65Warnings.ca.gov. |   |  |  |
| 16.2 | Terms & Definitions: | See last page of this Safety Data Sheet.   |   |  |  |
| 16.3 | Disclaimer:          | This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Birchwood Technologies' knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.   |   |  |  |
| 16.4 | Prepared for:        | Birchwood Technologies 7900 Fuller Road Eden Prairie, MN 55344 USA Tel: +1 (952) 937-7900 Fax: +1 (952) 937-7979 http://www.birchwoodtechnologies.com  | BIRCHWOOD®<br>TECHNOLOGIES                      |  |  |
| 16.5 | Prepared by:         | ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com   | ShipMate  Dangerous Goods Training & Consulting |  |  |



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### **DEFINITION OF TERMS**

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

#### **GENERAL INFORMATION:**

| CAS No. Chemical Abstract Service Number                                    |  |
|---|--|
| RTECS No. Registry of Toxic Effects of Chemical Substances Number           |  |
| EINECS No. European Inventory of Existing Commercial Chemical Substances Nu |  |

#### **EXPOSURE LIMITS IN AIR:**

| ACGIH                     | American Conference on Governmental Industrial Hygienists      |  |
|---------------------------|--|--|
| IDLH                      | Immediately Dangerous to Life and Health                       |  |
| NOHSC                     | National Occupational Health and Safety Commission (Australia) |  |
| OSHA                      | U.S. Occupational Safety and Health Administration             |  |
| PEL                       | Permissible Exposure Limit                                     |  |
| STEL                      | Short Term Exposure Limit                                      |  |
| TLV Threshold Limit Value |  |  |
| TWA                       | Time Weighted Average  |  |

#### FIRST AID MEASURES:

| CPR | Cardiopulmonary resuscitation - method in which a person whose heart has    |
|-----|---|
|     | stopped receives manual chest compressions and breathing to circulate blood |
|     | and provide oxygen to the body.   |

#### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

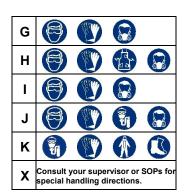
#### **HEALTH, FLAMMABILITY & REACTIVITY RATINGS:**

| 0               | Minimal Hazard  |  |
|-----------------|-----------------|--|
| 1               | Slight Hazard   |  |
| 2               | Moderate Hazard |  |
| 3 Severe Hazard |                 |  |
| 4               | Extreme Hazard  |  |



## PERSONAL PROTECTION RATINGS:

| Α |  |  |
|---|--|--|
| В |  |  |
| С |  |  |
| D |  |  |
| Е |  |  |
| F |  |  |





### OTHER STANDARD ABBREVIATIONS:

| Carc    | Carcinogenic                                     |
|---------|--|
| Irrit   | Irritant   |
| NA      | Not Available                                    |
| NR      | No Results                                       |
| ND      | Not Determined                                   |
| NE      | Not Established                                  |
| NF      | Not Found  |
| SCBA    | Self-Contained Breathing Apparatus               |
| Sens    | Sensitization                                    |
| STOT RE | Specific Target Organ Toxicity – Repeat Exposure |
| STOT SE | Specific Target Organ Toxicity – Single Exposure |

#### NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

| FLAMMABILI                  | FLAMMABILITY LIMITS IN AIR:   |  |  |
|-----------------------------|---|--|--|
| Autoignition<br>Temperature | Minimum temperature required to initiate combustion in air with no other source of ignition   |  |  |
| LEL                         | Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source  |  |  |
| UEL                         | Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source |  |  |

#### **HAZARD RATINGS:**

| 0       | Minimal Hazard  | FLAMMABILITY |
|---------|-----------------|--------------|
| 1       | Slight Hazard   | \            |
| 2       | Moderate Hazard | REACTIVITY   |
| 3       | Severe Hazard   |              |
| 4       | Extreme Hazard  |              |
| ACD     | Acidic          |              |
| ALK     | Alkaline        |              |
| COR     | Corrosive       | / <b>~~~</b> |
| W       | Use No Water    | HEALTH 🔪     |
| ОХ      | Oxidizer        | SPECIAL      |
| TREFOIL | Radioactive     | PRECAUTIONS  |

#### TOXICOLOGICAL INFORMATION:

| LD <sub>50</sub>   | Lethal Dose (solids & liquids) which kills 50% of the exposed animals  |  |  |
|--|--|--|--|
| LC <sub>50</sub>   | Lethal concentration (gases) which kills 50% of the exposed animal     |  |  |
| ppm Concentration expressed in parts of material per million parts |  |  |  |
| TD <sub>Io</sub> Lowest dose to cause a symptom                    |  |  |  |
| TCLo   | Lowest concentration to cause a symptom                                |  |  |
| TD <sub>Io</sub> , LD <sub>Io</sub> , & LD <sub>o</sub> or         | LDo or Lowest dose (or concentration) to cause lethal or toxic effects |  |  |
| TC, TCo, LCio, & LCo   |  |  |  |
| IARC   | International Agency for Research on Cancer                            |  |  |
| NTP  | National Toxicology Program  |  |  |
| RTECS  | Registry of Toxic Effects of Chemical Substances                       |  |  |
| BCF  | Bioconcentration Factor  |  |  |
| TLm  | Median threshold limit   |  |  |
| log Kow or log Koc   | Coefficient of Oil/Water Distribution                                  |  |  |

### REGULATORY INFORMATION:

| WHMIS | Canadian Workplace Hazardous Material Information System |  |  |  |
|-------|--|--|--|--|
| DOT   | U.S. Department of Transportation                        |  |  |  |
| TC    | Transport Canada   |  |  |  |
| EPA   | U.S. Environmental Protection Agency                     |  |  |  |
| DSL   | Canadian Domestic Substance List                         |  |  |  |
| NDSL  | Canadian Non-Domestic Substance List                     |  |  |  |
| PSL   | Canadian Priority Substances List                        |  |  |  |
| TSCA  | SCA U.S. Toxic Substance Control Act                     |  |  |  |
| EU    | European Union (European Union Directive 67/548/EEC)     |  |  |  |
| WGK   | Wassergefährdungsklassen (German Water Hazard Class)     |  |  |  |

### WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

|            | <b>(A)</b> | <b>(2)</b> | (3)      | $\odot$    | (4)        |           | (R)      |
|------------|------------|------------|----------|------------|------------|-----------|----------|
| Class A    | Class B    | Class C    | Class D1 | Class D2   | Class D3   | Class E   | Class F  |
| Compressed | Flammable  | Oxidizing  | Toxic    | Irritation | Infectious | Corrosive | Reactive |

#### CLP/GHS (1272/2008/EC) PICTOGRAMS:

|           |           |          | $\Diamond$  |           |       | <b>(</b> :            |                  | <b>(</b>    |
|-----------|-----------|----------|-------------|-----------|-------|-----------------------|------------------|-------------|
| GHS01     | GHS02     | GHS03    | GHS04       | GHS05     | GHS06 | GHS07                 | GHS08            | GHS09       |
| Explosive | Flammable | Oxidizer | Pressurized | Corrosive | Toxic | Harmful<br>Irritating | Health<br>Hazard | Environment |